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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,766	10/26/2001	Mark F. Krol	SP01-038	2882

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EXAMINER

VALENCIA, DANIEL E

ART UNIT PAPER NUMBER

2874

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/061,766

Applicant(s)

KROL ET AL.

Examiner

Daniel E Valencia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 7-11, 13, 28-38 and 54-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12, 14-27 and 39-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-58 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Applicant's election with traverse of Group I and species I has been acknowledged. In previous Office Action Paper No. 8, the Examiner erroneously restricted Group I from Group II on the grounds that the inventions were unrelated. However, the two groups describing patentably distinct inventions should have **properly** been restricted on the grounds that Group I is the product and Group II is the process of its use. In the instant case, the process of maintaining an optical switch fabric could have been practiced by a materially different switch and does not require the specifics of the switch described in Group I. Accordingly, this restriction requirement is made **final**.

The status of the claims is as follows:

Claims 1-6, 12, 14-27, and 39-53 have been elected by the Applicant and are under examination.

Claims 7-11, 13, 28-38, and 54-58 were non-elected and are withdrawn from consideration.

Claims 7-11, 13, and 28-38 are dependent upon generic claims and will be allowed, **should** the application itself become allowable.

### *Inventorship*

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 12, 14-25, and 39-53 rejected under 35 U.S.C. 103(a) as being unpatentable over Carr U.S. Patent Application Publication No. 2002/0085795. Refer to the appropriate drawings or parts of the specification. Carr discloses a modular optical switch fabric with essentially all the limitations of the abovementioned claims.

Regarding claims 1-3, 14, 22-25, 41-44, Carr discloses a modular switch fabric (fig. 1 and 2) comprising: an optical chassis (11) having at least one first chassis connector (13) and at least one second chassis connector (13); a reflective element (16) attached to the optical chassis; and at least one pair of optical modules (12 and 13) including a first optical module and a second optical module, the first optical module having a first optical module connector mating with at least one first chassis connector and the

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second optical module having a second optical module connector mating with at least one second chassis connector such that the first optical module is optically coupled to the second optical module via the reflective element (paragraph 12), each optical module including a beam steering panel (15) secured to a frame member, the frame member being configured to position the fiber panel in fixed optical alignment relative to the beam steering panel.

Although Carr's disclosure does not explicitly state that the optical module includes a collimator panel in alignment with the beam steering panel, collimating panels in optical switches are very well known means of aligning optical signals. One of ordinary skill in the art would recognize the need/advantage of a collimator panel in any optical switch, including the switch disclosed in Carr. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include a collimator panel for aligning input/output module fibers with the beam steering panel in the switch disclosed by Carr.

Carr's disclosure further states that the reflective element is a mirror (16) coupled to the optical chassis in optical communication with the at least one optical module, as mentioned in claim 12. With reference to claims 15-17, 19, and 45-48, Carr discloses that the beam steering pixel is comprised of a MEMS mirror element with two degrees of freedom, wherein the device includes at least 324 mirrors (paragraphs 9 and 10). Carr further discloses using a control system to provide an electrical control signal to the mirrors via an electrical connector couple to the optical chassis connector (21 and paragraph 9), as described in claims 4, 18, 20, 21, 39, and 40.

With reference to method claims 49-53, the steps described would have been inherently carried out by using the device disclosed by Carr.

Claims 5, 6, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr in view of Sandler U.S. Patent Application Publication No. 20020122619. Refer to the appropriate drawings or parts of the specification. Carr as applied above, discloses a switch fabric with a majority of the claimed limitations of the present invention. Carr however; fails to explicitly disclose a folded Z-shaped configuration.

On the other hand, folded Z-shaped configuration switches are well known in the art of optically reflective switches using MEMS devices. Additionally, Sandler teaches the limitation that the Carr reference lacks. Specifically, Sandler teaches a folded Z-shaped configuration (fig. 7) having a first wing (502), a center portion (504), and a second wing (506), wherein at least one input optical module (512, 516, 518) is disposed in the first wing, a reflective element (533) is disposed in the center portion, and at least one output optical module (568, 562) is disposed in the second wing. Both Carr and Sandler disclose optically reflective switches using MEMS devices; therefore, one of ordinary skill in the art would recognize that the two references are from the same field of endeavor and could be combined. Furthermore, one of ordinary skill in the art would have found it obvious at the time of invention to combine Sandler's folder Z-shaped configuration teaching to the optical switch fabric disclosed by Carr.

### ***Conclusion***

The prior art documents submitted by the applicant in the Information Disclosure Statement filed on October 9, 2002, have all been considered and made of record (note attached copy of form PTO-1449).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chen U.S. Patent No. 6,580,849, Rensing U.S. Patent Application Publication No. 2002/0164113, and Smith U.S. Patent Application Publication No. 2002/0071627 all disclose optically reflective switches utilizing the folded Z-shaped configuration design.

Bala U.S. Patent No. 6,335,992 discloses a scalable optical cross-connect switch utilizing optical modules for upgrading switch capacity.

Oxley U.S. Patent No. 4,830,452 discloses an optical switching fabric having a chassis and optical module connections.

Neukermans U.S. Patent Application Publication No. 2002/0164110 discloses a flexible modular compact fiber optic switch having optical module connections, collimator panels, and beam steering panels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel E Valencia whose telephone number is (703)-305-4399. The examiner can normally be reached on Monday-Friday 9:30-6:00.

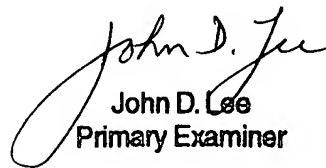
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The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7724 for regular communications and (703)-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

A handwritten signature in black ink, appearing to be "D. Lee".

DEV  
July 6, 2003

A handwritten signature in black ink, appearing to be "John D. Lee".  
John D. Lee  
Primary Examiner